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CORONARY ARTERY CALCIUM PREDICTS INTERMEDIATE-TERM EVENTS IN SUBJECTS WITH A LOW LIFETIME RISK OF CARDIOVASCULAR DISEASE: THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS (MESA)

Moderated Poster Contributions
Poster Sessions, Expo North
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Background: The aim of our study is to identify predictors for coronary heart disease (CHD) events among individuals with a low lifetime risk of cardiovascular disease in a large, population-based, multi-ethnic population.

Methods: MESA is a cohort study of men and women aged 45-84 years and free of clinical cardiovascular disease at baseline. Low lifetime risk participants were identified as non-diabetic, non-smoking subjects with a total cholesterol ≤ 200 mg/dL, systolic BP ≤ 139 mmHg, and diastolic BP ≤ 89 mmHg. We assessed predictors of CHD events including age, gender, ethnicity, low HDL-C, C-reactive protein, family history of CHD, carotid intima-media thickness (CIMT) and coronary artery calcium (CAC). We calculated the number needed to scan (NNS) to identify CAC>0 and >100.

Results: From 6,776 subjects, 1,391 (58.6 ± 10.2 yrs; 51% male) had low lifetime risk, of whom 479 (34%) had CAC>0 and 183 (13%) had CAC>100. Over a median follow-up of 7 years, there were only 24 events (1.7%). CAC was present in 18 (75%) subjects with an event. In multivariable analyses (Figure), only increasing CAC remained predictive of CHD. The event rate in those with CAC >0 and >100 was 5.4/1000 and 10.4/1000 person-years, respectively. The NNS to identify CAC>0 and CAC>100 were 3 and 7.6, respectively.

Conclusions: While event rates are low in those with low lifetime risk, CAC is the strongest predictor of CHD. Identification of these individuals carries significant potential therapeutic implications.

	Univariate HR (95% CI)	P value	*Multivariate HR (95% CI)	P value
Age (per 10 years)	2.06 (1.41-3.02)	<0.001	1.23 (0.77-1.96)	0.38
Male vs Female	2.34 (0.97-5.65)	0.06	1.06 (0.40-2.81)	0.90
Race				
White	1 (ref)			
Chinese American	0.33 (0.07-1.42)	0.14	-	-
AA	0.44 (0.12-1.52)	0.19		
Hispanic	0.53 (0.18-1.60)	0.26		
Low HDL	1.51 (0.77-4.25)	0.18	-	-
CRP>2	1.46 (0.65-3.26)	0.35	-	-
FH of premature CHD	1.80 (0.76-4.25)	0.31	-	-
CIMT				
1st quartile	1(ref)		1 (ref)	
2nd quartile	3.03 (0.61-15.05)	0.17	3.04 (0.61-15.13)	0.17
3rd quartile	1.51 (0.25-9.08)	0.65	1.24 (0.20-7.53)	0.81
4th quartile	6.21 (1.39-27.76)	0.02	2.53 (0.52-12.23)	0.25
CAC				
0	1 (ref)		1 (ref)	
1-100	2.68 (0.81-8.78)	0.10	2.12 (0.60-7.52)	0.24
101-400	7.99 (2.58-24.78)	<0.001	5.56 (1.47-21.02)	0.01
>400	18. 44 (6.20-54.89)	<0.001	9.27 (2.14-40.13)	0.003

*Variables included with p < 0.1 from Unadjusted analysis